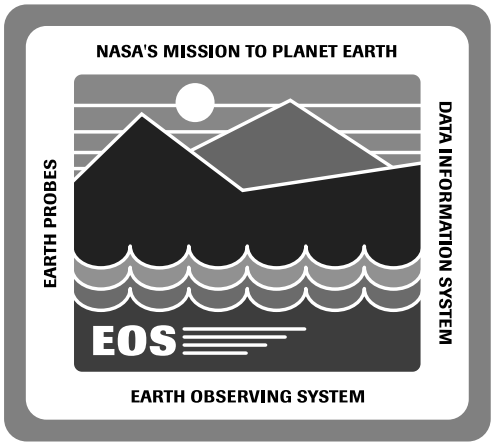
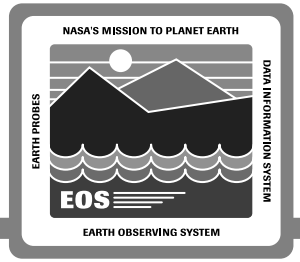


FOS Prototype Results Review

Andy Miller

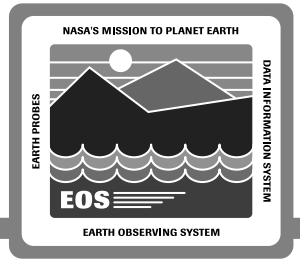
24 August 1995

Prototype Results Review Agenda



Prototype Results Overview	**Andy Miller**
Prototype Results Presenters	
• **User Interface**	**Jim Creegan**
• **Planning and Scheduling**	**Guy Swope**
- **Resource Model Distribution**	**Guy Swope**
- **Accesses**	**Ken Cockerill**
- **Activity Definition**	**Jim Yu**
- **Activity Constraints**	**Steve Pawlish**
• **Command Management**	**Theresa Brandt**
• **Real-time**	**Ken Fregeolle**
• **Analysis**	**Kevin Robair**
• **Data Management**	**Dave Peters**

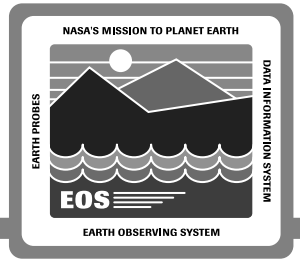
FOS Prototype and Studies Background



General FOS prototype goals

- **User satisfaction**
  - **Demos to the user community (i.e., formal, informal)**
  - **Useability testing**
  - **Involvement of the ECS FOT (e.g., SSR rule definition)**
- **Risk mitigation**
  - **Drive out requirements and design**
  - **Develop object oriented methodology experience**
  - **Development of interfaces (e.g., Planning and Scheduling and Command Management)**
- **Technology Assessment**
  - **Expert Systems**
  - **User interface features (Schematics, 3D plots)**

FOS Prototype and Studies Background



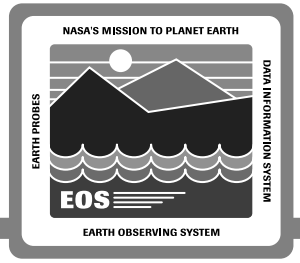
FOS prototyping initially performed as four individual prototypes

- **Planning and Scheduling**
- **Command Management**
- **Decision Support**
- **Instrument Support Toolkit**

FOS conducted Prototype Results Reviews demonstrating the FOS prototypes and delineating results

- **PRR #1 November 1993**
- **PRR #2 June 1994**
- **PRR #3 February 1995**

FOS Prototype and Studies Goals



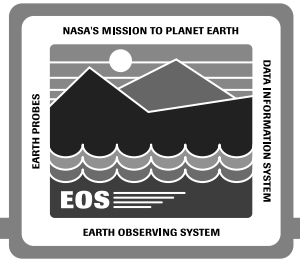
Primary Theme for February 1995 through August 1995 phase

- **Perform studies and analysis to drive out the FOS detailed design**
- **Solve specific design issues through proof-of-concept prototypes**

Key Objectives

- **Determine COTS to procure**
  - **User interface graphics**
  - **Analysis packages**
  - **Data Base package**
- **Analyze detailed design issues**
- **Prepare and refine screen mock-ups**

System Prototypes



ECS class library selection

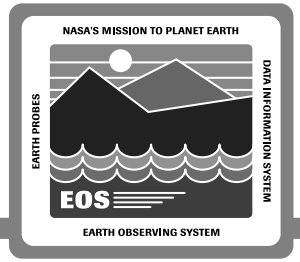
Purpose

- **Evaluate and select the class library for the ECS project**

Approach

- **Evaluate class libraries (Booch Components, Hughes Class Libraries, Object Systems, Rogue Wave)**
- **Evaluation criteria**
  - **POSIX compliant, thread safe, exception handling built-in, multi-platform support, add-on libraries, ease of use with IPC, multiple inheritance, templates**
- **Evaluation process**
  - **8 developers across ECS project; 2 per library**
  - **Same development/maintenance task for every library**
  - **Evaluation data scored (time to find a class, time to use a class, documentation, time to modify an existing application)**

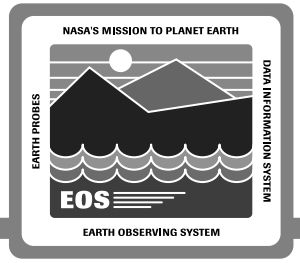
System Prototypes



Results

- **Selected Rogue Wave**
- **Clear choice using both objective and subjective criteria**

System Prototypes



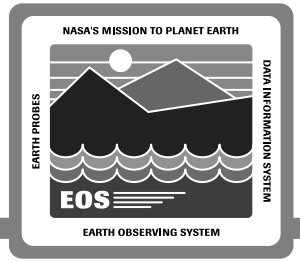
Prioritize coding

- **General Results**
  - **Identify and develop common software objects first**
  - **Subclasses are inherited from fully defined base classes**

Stp/OMT Code Generation Capabilities

- **General Results**
  - **Generates templates from object models from which software development can start**
  - **Reduces menial typing**
  - **Automate data dictionary generation from OMT-generated header files**

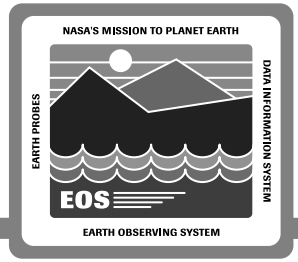
System Prototypes



Low-level software items

- **General Results**
  - **Prototyped sending Rogue Wave objects across sockets, DECmsg Queues, Pure Logic Pipes**
    - **Mitigate risk of passing classes**
    - **Verified ability to pass classes in each case**
  - **Prototyped multiple inheritance with Rogue Wave**
    - **Determine if multiple inheritance supported on all platforms**
    - **Multiple inheritance is fully supported; increases reuse**

System Prototypes - On-going and Future

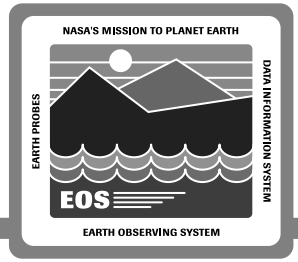


NSI Testbed/IST simulation prototype

Purpose

- **Determine/analyze EOC/IST network performance characteristics**
- **Scheduling**
  - **Interactive scheduling**
- **Real-time**
  - **Packet sequence**
  - **Packet delay**
  - **Data transfer rates (e.g., telemetry)**
- **File transfers**
  - **FTP**

System Prototypes - On-going and Future



Parameter server/monitor prototype

Purpose

- **Provide generic mechanism for the maintenance, service, and receipt of ground system and telemetry parameters**
- **Used by multiple FOS subsystems (i.e., user interface, telemetry, command, and analysis)**

PC-based Unix User Station Prototype

Purpose

- **Evaluate potential porting and performance issues regarding low-cost workstation solutions (i.e., Solaris)**